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ABSTRACT

Learning style theories offer opportunities and challenges to composition instructors. Some complement contemporary directions in composition theory, but others are counter-productive in prescribing neat categorizations of students that tend to limit teacher expectations of students' abilities. Four current directions in learning style research (brain hemisphere specialization, Jungian personality types, sensory modalities, and Howard Gardner's seven types of intelligence) are examined. Their usefulness is explored and their dangers are identified. Diagnosis and accommodation of learning disabilities is discussed. Instructors can assess students and adapt classroom methods and assignments when they find the learning style theoretical constructs useful additions to underlying methodological principles. Contains 44 references. (Author/RS)

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Abstract

Learning style theories offer opportunities and challenges to composition instructors. Some complement contemporary directions in composition theory, but others are counter-productive in prescribing neat categorizations of students that tend to limit teacher expectations of students' abilities. Four current directions in learning style research are examined, their usefulness explored, and their dangers identified. Instructors can assess students and adapt classroom methods and assignments when they find the learning style theoretical constructs useful additions to underlying methodological principles. A collection of informal assessment instruments is appended.

"LEARNING STYLE AND WRITING INSTRUCTION"

John F. Rose

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Introduction: Pick a Number

Some number between one and sixteen corresponds to the number of learning styles possessed by students, depending on which school of experts categorizes learners. Should instructors teach to the whole person, confident that one size fits all and that sound conceptual sequencing will work with all motivated students? Or should instructors keep in mind that each student really possesses two distinct ways of interpreting experience, one way employed by the left brain hemisphere and the other by the right side of the brain? Perhaps instructors should attend to the needs of learners rooted in sensory mode preferences. One school finds three sensory modes: visual, auditory, and kinesthetic. Or are there four: visual, auditory, kinesthetic, and tactile? The 4-Mat System also finds four a lucky number in this game of educational roulette but divides students into quite different categories: Imaginative Learners, Analytic Learners, Common Sense Learners, and Dynamic Learners. My second grade teacher used five, though perhaps only because there were five rows of desks bolted to the floor: the turtles, ponies, puppies, kittens, and bunnies. Howard Gardner's model posits a blend in each student of some combination of seven types of intelligence: Linguistic, logical-mathematical, spatial, musical, body-kinesthetic, interpersonal, and intrapersonal. Jungian personality type theory divides people into sixteen categories based on dominant and inferior mental habits or preferences. If, as it seems, learning style theory lacks any cohesive underlying principles, perhaps it would be just as well to draw horoscopes and classify students by their sun signs or Sufi-based Enneagrams.

In truth, in a class of twenty-five students, twenty-five learning styles are represented, arising from each student's individual identity. Any effort to shoe-horn every student into one or another category is bound to collapse if pursued too assiduously, yet the various ways of categorizing learners serve as metaphoric models that can broaden and enliven both teaching and learning, moving instructors away from too narrow expectations rooted in their own educational experiences and prejudices.

Whatever learning theory underlies an instructor's methods in teaching composition, students must be understood as individuals. Since written communication is so closely linked to an individual's perspective, instructors can best assist students when they endeavor to understand how students interpret experience. For example, Vygotsky's concept of the Zone of Proximal Development can be applied only when students' sensory and cognitive propensities are understood. Insight into the ways students see the world helps teachers to plan assignments that make the writing experience more meaningful by raising the level of student interest and concomitant level of proficiency.

Although I cringe at the idea of pigeon-holing students, the systems discussed here have merit if used prudently. No educational horoscope needs to be generated when exploring these metaphoric templates to discover how they can be adapted to the composition classroom. A general familiarity with leading learning style theories helps composition teachers to plan curricula, design assignments and activities, and provide avenues of success for all students. Instructors need not characterize each student by sensory,

personality, or cognitive style to employ the idea that students learn in different ways and benefit when different paths are open to perform the tasks and make the cognitive progress required in composition classrooms. What follows is an exploration of some current learning style theory and an appendix including some surveys useful in helping to adapt instruction to such theories.

The Brain Hemisphere Dominance Fallacy

Nothing oppresses the heart so much as symmetry. Victor Hugo

Modern neuropsychology began more than a hundred years ago as an outgrowth of brain surgery and attempts to discover the location of motor control centers in the brain. In 1861 French surgeon and anthropologist Paul Broca discovered that damage to the left frontal area of the brain had resulted in aphasia in two of his patients. From this evidence, he concluded that the human brain has localized functional areas. He further postulated that speech is represented in the left side of the brain for right-handers and in the right side for left-handers. His research was followed up by others, and for the next hundred years evidence of brain localization, asymmetry, and contralateralization was compiled. The left side of the brain was viewed as the dominant side--the center of language and reason; consequently, right-handedness was seen as product of normal brain asymmetry. Some researchers saw left-handedness as a pathological condition and searched for its possible cause in brain damage, birth trauma, or even anti-social propensities.

To establish a connection between hemispheric specialization and lateral preference in people, researchers have sought evidence that left-handedness results from atypical brain localization and hemispheric dominance. In regard to language, three possibilities are apparent: 1) the left-handed person may have the language related center in the right hemisphere, 2) the left-handed person may have the language related center in the left brain hemisphere, 3) or

the left-handed person may possess bilateral distribution of language areas.

HANDEDNESS	LANGUAGE LATERALIZATION		
	LEFT	BILATERAL	RIGHT
RIGHT			
Segalowitz (1983)	96%	0%	4%
Carter (1984)	99%	0%	1%
Rasmussen (1977)	96%	0%	4%
LEFT			
Segalowitz (1983)	70%	15%	15%
Carter (1984)	23%	66%	11%
Rasmussen (1977)	61%	20%	19%

(Bradshaw 165)

Whatever the causes of sinistrality may be, a link between left-handedness and reading disabilities is indicated by statistical evidence: "...when children were selected for specific reading disability...a marked and significant excess of sinistrals was found in this group" (Springer 200).

Visual-spatial testing for eye dominance does not produce results that suggest such divergence between manual dextrals and sinistrals. Both acuity and binocular dominance are considered in determining eyedness. Both eyes are used in seeing; each is linked to a brain hemisphere, and each sends signals to both hemispheres. This is different from the neuro-anatomical design that is involved in manual preference. A persistent theory, first proposed by Samuel T. Orton in 1934, holds that cross-dominance, hemispheric dominance, handedness, and eyedness may account for reading disabilities. Orton believed that the dominant hemisphere receives a normally

oriented image of a word, while the non-dominant hemisphere receives a reversed image (267). In the absence of cerebral dominance, a dyslexic child would be confused by the present image and memory of a letter or word in both forward and reversed form. Orton's understanding of how visual representations are imprinted and recognized in the brain was found to be inaccurate, but his theory that linked atypical hemispheric asymmetry to reading and writing problems has spawned a great deal of research which, in turn, has led to a variety of remedial approaches, both meritorious and fallacious (268).

Strong advocates of the primacy of mixed lateral dominance as the single cause of reading dysfunction have adopted a view of the brain that separates all aspects of behavior into 'right-brain' and 'left-brain' dominant categories. According to this broad categorization, the right brain functions in a holistic way, while the left brain is analytic. This version of popular neuropsychology divides hemispheric functions like this:

Left	Right
Positive	Intuitive
Analytical	Spontaneous
Linear	Holistic
Explicit	Diffuse
Sequential	Non-linear
Verbal	Non-verbal
Concrete	Symbolic
Rational	Emotional
Active	Playful
Goal-oriented	Artistic

The split-brain advocates find the cause for learning problems in either non-integration of presumed brain hemisphere cognitive specialization or in the tyranny of left brain orientation in education and in society as a whole (see A-39). They claim that education can be improved by awakening the holistic influence of the right brain and by teaching and rewarding right brain skills. Consider this passage:

> Because left-handers have to assert themselves in a right-hand world, they are likely to be extreme natural right-brainers. On the other hand, right-handers could be right-brained persons who found adaptation easier than fighting the left-brained system. In 1932 two percent of the U. S. population was left-handed; today the estimate is fifteen percent. This growth is attributed to the discovery that thwarted left-handedness often causes stuttering and emotional problems. (Wonder 29)

Consider the first sentence. According to this author, left-handers are likely to be extreme right-brainers, yet the chart on page two cites three respected researchers who all concluded fewer than twenty percent of left-handers showed right-brain dominance in language. The author also states that the occurrence of left-handedness has increased, yet no evidence of such variation is indicated in Segalowitz' survey of handedness depicted in art works spanning five thousand years. Finally, the author cites forced changes in manual dominance as a cause of stuttering. No support of this statement is found in Exceptional Children: "...stuttering is a mystery. Its causes and cures remain largely unknown" (Hallahan 218).

Another volume purports to supply a treatment and cure for dyslexia based on correcting "energy imbalances" that result from atypical lateral dominance.

> About ten percent of the population are left-handed and left-eyed and are thus apparently right-brain dominant....Another twelve percent of the population are crossed dominant or mixed dominant. Most are right-handed and left-eyed and don't know it. Some are left-handed and right-eyed....Collectively, this group comprises the majority of dyslexics and well over fifty percent of those classified as learning disabled. (Dennison 60)

As mentioned earlier, sinistrality and eyedness are not indicators of right hemispheric dominance. As for the author's proposition that cross or mixed dominance are indicators of language learning problems, no support is evident in any of the other works consulted. Indeed, other authors caution against drawing such simplistic conclusions from the complex research on laterality.

I have worked with learning disabled adults for six years and have not encountered any evidence to support this author's contention. Compensatory strategies are taught to students based on their areas of weakness, but never on the basis of handedness or eyedness unless based on a physical disability. I happen to be left-handed and right-eyed but I don't believe I have ever encountered difficulties in school based on these preferences. (I do have a hard time operating chain saws, which are made for right-handers only.)

Apparently some well-meaning educators feel they have discovered an understandable, programmable pedagogy based on laterality. However, they draw from anecdotal evidence, pop neurophysiology, and the oversimplification of left/right brain dichotomies rather than from current research. Unfortunately, the human brain/language/mind/sensory matrix is simply too complex and too little understood to fit the parameters of their theories. Recent research tends to move away from theories of cognitive specialization based on laterality.

> Some of the claims involving the differential specialization of the two hemispheres have been dismissed by serious scholars as unwarranted overgeneralizations from the known facts by "academic hucksters" or "non-professionals." These same scholars also have acknowledged that the field of what has now come to be called "laterality research" has been characterized by a disproportionately large number of contradictions and failures to replicate the experimental results of others. At least one of them has voiced his suspicion that there has been a strong tendency for selective publication of results that are consistent with the prevailing theoretical Zeitgeist . . . (Efron 2)

Despite overdependence on the right-left brain dichotomy, McCarthy's book The 4-MAT System provides an excellent outline for teaching to different learning styles (see A-65-74). McCarthy has synthesized Jung's personality types, learning style theory, and cognitive research to produce a practical guide for writing teachers

who seek approaches that will reach all students whatever their learning style. For whatever the limitations of right/left brain theory, I have no doubt that people learn in different ways. The pragmatic, as opposed to the theoretical, aspects of this volume offer valuable alternative methods to instructors who should, after all, use every method that works for their students.

Even if definite scientific evidence has so far failed to support the theory that learning disabilities are a product of cross neurological patterning, the research and the educational approaches suggested by it have provided education with valuable new methods and insights. Though efforts have been made to elevate (or reduce, cries the right-brain!) education to the level of a science, it remains an art. Being an art, education can draw from all sources that offer insight and inspiration.

Jungian Personality Types

Carl Jung saw human behavior, not as random, but as patterned in the way people perceive and make decisions. Isabel Briggs Myers developed a pencil and paper survey that she used as a research tool in her studies of Jung's theories, and in 1962 Educational Testing Services produced the Myers-Briggs Type Indicator. By the late 1970's the survey had achieved wide circulation, and it has been used in business and educational settings to ascertain how people learn and function in group settings.

Jung grounded his personality type theory in research in mythology, literature, and his own practice (see A-40). He believed that one of the four processes (sensing, intuiting, feeling, and thinking) was a person's dominant mode, a second an auxiliary mode, and a third the subordinate mode. In extroverted people the dominant process is evident in the way they deal with the outer world, but in introverted people the auxiliary process is presented to the outer world to retain the sense of privacy they seek. Thus the question arises whether this complication allows a questionnaire like the MBTI or its compressed derivatives to be usefully employed by classroom teachers (see A-41-52).

A second complication arises when applying type analysis to young people, for Jung felt that although each person has a true type, he/she may not be aware of it. Students may be exploring their preferences and trying on different attitudes for size, as it were. In addition, particularly in classroom testing settings, students may lead with attitudes they feel are expected or appropriate to the

academic setting and so respond as their 'student' selves rather than as their 'real' selves.

Many of the questions on the Gray/Wheelwright Jungian Type Survey, for example, might cause students to respond for politic reasons, rather than genuine ones. Cultural factors and standards of etiquette could affect responses, as well.

1. In general company do you like to
    a. Listen
    b. Talk
7. In practice, you are
    a. Casual
    b. Punctual
16. When a book is disappointing do you
    a. Try a new one
    b. Finish it anyway

Even if a teacher is uncomfortable with typing the students in a class or doesn't feel time should be spent on the effort, it is important that she/he understand personality type, for Jungian type indicators are widely used and discussed, have spawned other learning style inventories, and are the basis of such cognitive analysis instruments as the 4-Mat System (see A-65-74). Furthermore, many assignments, activities, and evaluation standards arise from a teacher's own personality type and are so important in defining the classroom dynamic that it would be unfortunate not to realize that students operate best in different ways and respond with different strategies to tasks presented to them.

Sensory Modalities

Sensory modality describes the way in which a student learns best. To over-simplify, some learn best by reading or watching others, some by listening, and some by doing. Of course, barring a physical loss of sensory ability, students learn in all three modes. Nonetheless, considerable evidence does support the notion that learners may operate best in one modality, perhaps because information entering the mind through the eyes, ears, or physical activity is stored in memory or processed more effectively according to a preferred mode. As a practical matter, sensory modality inventories are easy to administer and the results can be of considerable use to students (see A-53-74). If a student agrees that he/she learns best through one mode, study patterns can be altered to maximize the use of that mode. Visual learners can use charts, videos, notes, flashcards, clustering activities, cognitive maps, and graphic exercises to help in studying. Auditory learners can use tape recordings of lectures, can read their written work out loud, and can keep journals on audio tape. Kinesthetic learners should write and rewrite drafts, use role playing and pantomime, demonstrate what they have learned to others.

Some insights into students' sensory modality can be gained by observation.

Visual learners generally exhibit these characteristics.

- Reading: Likes description; sometimes stops to stare into space and imagine the scene; shows intense concentration.
- Spelling: Recognizes words by sight; relies on the configuration of words.

- Handwriting: Tends to be good; spacing and size are measured; appearance is important.
- Memory: Remembers faces but forgets names; writes things down; takes copious notes.
- Imagery: Vivid imagination; thinks in pictures; visualizes in detail.
- Distractibility: Generally unaware of sounds; distracted by visual disorder or movement.
- Problem solving: Deliberate; plans in advance; organizes thoughts by writing them down; lists problems.
- Response to periods of inactivity: Stares; doodles; finds something to watch.
- Emotionality: Somewhat repressed; stares when angry; beams when happy; facial expression is a good index of emotion.
- Communication: Quiet; does not talk at length; impatient when extensive listening is required; may use words clumsily; describes without embellishment.
- Response to the arts: Not particularly responsive to music; prefers the visual arts; tends not to voice appreciation of art but can be deeply affected by visual displays; focuses on details and components rather than the work as a whole.

Auditory learners generally exhibit these characteristics.

- Reading: Enjoys dialogue and plays; avoids lengthy description; sometimes doesn't notice illustrations; moves lips or subvocalizes.
- Spelling: Uses a phonic approach.
- Handwriting: Tends to write lightly; says letters or words as they are written.

- Memory: Remembers names, forgets faces; remembers by auditory repetition.
- Imagery: Subvocalizes; thinks in sounds; details less important.
- Distractibility: Easily distracted by sounds.
- Problem solving: Talks problems out; tries solutions verbally; talks self through problems.
- Response to periods of inactivity: Hums; talks to others.
- Emotionality: Shouts with joy or anger; blows up verbally; expresses emotion through changes in tone, volume, and pitch of voice.
- Communication: Enjoys listening but cannot wait to talk; descriptions are long but repetitive; likes hearing others or self talk.
- Response to the arts: Favors music; finds less appeal in visual arts, but is ready to discuss them; misses significant detail, but appreciates the work as a whole; is able to develop verbal associations for all art forms; spends more time talking about pieces than looking at them.

Kinesthetic learners generally exhibit these characteristics.

- Reading: Prefers stories where action occurs frequently; fidgets when reading; handles and shifts position of books; not an avid reader.
- Spelling: Often a poor speller; writes words to determine whether they feel right.
- Handwriting: Deteriorates when space is limited; pushes harder on pen.

- Memory: Remembers best what was done, not what was seen or talked about.
- Imagery: Imagery not important; images that appear are accompanied by body movements and hand gestures.
- Distractibility: Not attentive to visual or auditory presentations so may seem distractible.
- Problem solving: Attacks problems physical; wants to get down to it; impulsive in planning projects.
- Response to periods of inactivity: Fidgets; finds reasons to move; sort papers and books.
- Emotionality: Jumps for joy; hugs and tugs when happy; stamps and pounds when angry; general body tone and hand gestures are a good indicator of emotional state.
- Communication: Gestures when speaking; does not listen patiently; stands or close when speaking or listening; quickly loses interest in detailed verbal discourse.
- Response to the arts: Responds to music by physical movement; prefers sculpture and ceramics; interested in art with which he or she can be physically involved; comments very little on art.

Initially I thought the theory and methodology of the learning disabilities field too complex for my comprehension and waited for insight and experience to clarify my understanding. I now despair of ever grasping the principles underlying this school of learning theory. Based as this field is on presumed yet undetectable neurological dysfunction, these disorders cannot be diagnosed by medical personnel, have no apparent cure, and cannot really be defined. In the thirty years of the field's existence, learning disabilities experts seem no closer to defining the disorders either. A contributing editor of *The Journal of Disabilities* wrote, "No one . . . has been able to demonstrate to me that a specific, distinctly unique group of behaviors differentiate LD children from many of their classmates. To build an empire on such a foundation is very dishonest" (Tucker 9). If not an empire, the learning disabilities field is certainly an educational industry; billions have been spent pursuing the chimeral causes, treatments, and cures. The personal cost to those determined to be infected with the obscure disease is incalculable: "It seems such a shame to subject persons to the life-long effects of the label 'learning disabled' when we really don't know what it is" (Friedrich 209). The whole enterprise of isolating

and measuring intelligence factors "has been fraught with class and racial bias, with methodological errors in population selection, in statistical treatment, and in ways that results have been both interpreted and reported" (Mayer 61).

The assessment battery used to determine the presence of a learning disability in community college students is comprised of the Woodcock-Johnson Psycho-Educational Battery and the Wechsler Adult Intelligence Survey-Revised. Several sub-tests purport to ascertain language facility: Word Identification, pronouncing a list of unrelated words without regard to whether a student knows their meanings; Dictation, spelling a list of unrelated single words; Passage Comprehension, verbally filling in a missing word in a phrase or sentence; Proofing, correcting sentences that have mistakes in them. One item of the Proofing subtest offers this sentence: "The girl has to mittens." Only this response is scored correct: "The girl has two mittens." Equally plausible responses such as "The girl has no mittens" are scored as incorrect. Other dubious testing flaws abound.

The entire assessment process can take as few as four hours, and the results are considered to reveal aforementioned neurological dysfunctions. Little regard is given to students' earlier educational experience, even when students may have changed schools frequently, been absent for long stretches of time, or simply received a poor education. Native speakers of other languages are given the assessment in English, and I have participated in assessing students from Ethiopia, Afghanistan, Laos, Vietnam, Mexico, and Quebec. All

were found learning disabled, surely no surprise when the assessment is not in their natives languages.

Significantly, students never write even a single sentence during the entire learning disability assessment process, yet on the basis of these fragmented sub-skill tests students are diagnosed as disabled, classed as possessing a "written language deficit", offered extensive help with their essays, and made eligible for special accommodations in their composition classrooms. Composition instructors who feel they may have more pertinent insights are usually not consulted when special accommodations are required by learning disabilities specialists. This, despite the fact that composition instructors' perceptions of students' writing processes and difficulties are frequently based on weeks or months of engagement with these students and their writing.

Since whole language assessment is not conducted in determining the presence of written language learning disabilities, it is strange that learning disabilities literature urges the use of whole language techniques in both mainstream composition classrooms and in learning disabilities educational settings. Consider this advice from the Chaffee College "Research and Development of Written Language Instructional Program for Learning Disabled College Students."

> Learning disabled students in community colleges have specific language processing problems which affect the learning of academic skills, especially skills in written language. Diagnosed deficits in written language have tended to cluster in three *(sic)* groups:

1. students who have difficulties generating written language;

2. students who write in incoherent language, fragmented and run-on sentences, and use inappropriate punctuation;

3. students who write well-constructed sentences but have difficulties in organizing and sequencing ideas.

4. Some students have deficits which overlap these three clusters, and writing characteristics which exhibit a concrete level of writing devoid of abstract ideas.

I respectfully submit that, to a greater or lesser degree, these difficulties characterize *all* basic writers attempting to communicate in a discourse mode unfamiliar to them. The article continues:

THEORETICAL CONSTRUCT FOR TEACHING WRITTEN LANGUAGE TO LD STUDENTS:

1. Grammar should be taught as a component of the writing process and not as an isolated skill consisting of drill and work sheets. Errors will be corrected as they occur.

2. Oral language development should be a part of the writing process, through individual taping or verbalizing of ideas before writing occurs.

3. Reading should be incorporated into the writing process.

4. Sentence construction should focus on the flow of ideas; therefore, grammar and punctuation should not be emphasized. Sentence construction should be taught using a sentence combining method to create simple, compound, complex, and compound/complex structures.

5. Graphic diagrams should be used to assist students in generating ideas for sentences and paragraph writing.

6. The use of traditional grammar and composition terminology should be minimized.

SCOPE AND SEQUENCE OF INSTRUCTION

1. Oral language exercises.
2. Pre-writing exercises.
3. Writing exercises.
4. Independent writing exercises.

BEHAVIORAL OBJECTIVES

Students will demonstrate . . .

a significant number of:

---correctly written sentences

---clauses within these correct sentences

a significantly higher level of:

---idea development

---sentence variety and complexity

---paragraph development

. . . than students taught by traditional methods.

The LD specialists who authored this document appear to be staking out ground long occupied by linguists and composition theorists, for James Moffett wrote in 1968 (before the learning disabilities field was established): ". . . most linguists tend to conclude nowadays . . . correctness really means conforming to the particular grammar of standard dialect. . . . teaching a prescriptive body of rules designed to induce correctness appears blandly technical and humanly naive" (Moffett 156). Yet many learning disabilities specialists apparently fancy themselves as the vanguard of a crusade to empower oppressed students who are discriminated against

because of their disabilities. Since in many instances they preach to the converted in their insistence on whole language instruction, there is no reason to view their admonitions as interference. It is in the area of academic accommodation that swords are drawn.

Academic accommodations are exceptions to course requirements for which learning disabled students may qualify. They include untimed exams, professional help with essays, student note-takers, oral in place of written essay submissions, texts on audio tape, and waivers exempting a student from taking an otherwise required course. The appropriate accommodation is ascertained by the learning disabilities specialist, usually without consultation with the writing instructor, and woe to the instructor who may disagree with the soundness of the decision. This semester (Spring 1994) at College of the Redwoods a drama unfolded when an English instructor charged that a learning disabled student couldn't have written the essay he submitted as a class assignment.

Gardner's Seven Types of Intelligence

In his book Frames of Mind, Howard Gardner portrays human intelligence in a new way. He suggests that academic settings have for so long emphasized certain skills that these few skills have come to define intelligence itself in the academic setting. He defines these skills or areas of human endeavor as intelligences in themselves. These intelligences can't be found in a pure state in individuals, but unique combinations and relationships among them produce an individual's strengths (see A-75).

It's not that reading, writing, and logic are in any way inferior to the other intelligences Gardner explores, but that those who may possess strong talents in other intelligences are in effect driven to failure or driven out of the school system because they can't use their strengths. Since education has a responsibility to provide successful experiences to students whose strengths are not confined to the traditional academic areas, why should students with alternative strengths be penalized?

Gardner feels that limitations imposed on the curriculum by tradition and cultural and intellectual imperialism are to blame. The idea that some people just aren't 'college material' (a repellent phrase still current) is at the root of resistance to change. At a time when some college training is required for so many careers, should a large proportion of the population be sentenced to a marginal economic existence because they don't thrive in the limiting environment of the traditional classroom? In Unschooled Minds Gardner asks this question: "Why do members of a species who

master certain concepts and skills so readily exhibit so much difficulty in obtaining the skills and understandings that school at its best strives to provide?" (19). He indicates that stricter imposition of methods and standards which have proved inadequate will not be successful:

> . . . I take issue with many traditional educators who call for 'basic skills,' 'cultural literacy,' or the mandating of standardized tests. By the same token, I embrace the position that educational institutions need to reach the broadest number of students and that they must therefore be responsive to different forms of learning, performance, and understanding. (18)

Based in cognitive theory that avoids the simplistic dichotomy of the right brain/left brain concept, the concretistic fallacy of learning disability theory, or the reductionist dangers of sensory modality models, Gardner offers a methodology useful in opening a way into learning for all students. Matched to his seven types of intelligence, the five 'entry points' are as follows:

> •Narrational entry point--a story or narrative introduces the concept to be taught.
>
> •Logical-quantitative entry point--invokes numerical considerations or deductive reasoning.
>
> •Foundational entry point--examines fundamental philosophical facets of the concept.
>
> •Esthetic entry point--emphasizes sensory features.
>
> •Experiential entry point--utilizes a hands-on approach to the concept. ((Unschooled Minds 245)

Used in combination, lessons based on these entry points not only offer a way into the concepts offered, but also help students to reach beyond their preferred learning styles. The hallmark of real understanding is the ability to think about knowledge in a variety of ways, and to likewise represent this understanding in a variety of ways. Educational methods that bring students' ways of understanding into the learning process keep students in a central position in schools, a position they must occupy if real learning is to occur.

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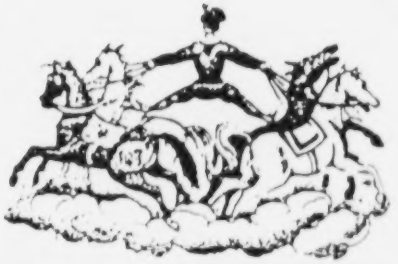
The Two Sides of Our Brain

(TWO MODES OF CONSCIOUSNESS AND PERCEPTION)

The Left Side	The Right Side
Connected to the right side of the body, and the right side of each eye's vision.	Connected to the left side of the body, and the left side of each eye's vision.
Deals with inputs one at a time.	Demands ready integration of many inputs at once.
Processes information in a linear manner.	Processes information more diffusely.
Has a linear and sequential mode of operation.	Has a nonlinear and simultaneous mode of operation.
Deals with time.	Deals with space.
Responsible for the faculty of verbal expression, or language.	Responsible for gestures, facial and body movements (or "body language"), tone of voice, etc.
Responsible for verbal and mathematical functions.	Responsible for spatial and relational functions; awareness of one's own body, for sports and dancing; our orientation in space; recognition of faces; crafts; artistic endeavor; musical ability and recognition of pitch.
Specializes in memory and recognition of words or numbers.	Specializes in memory and recognition of objects, persons and places; music, etc.
Normally tends to specialize in logic and analytical reasoning or thinking.	Normally tends to specialize in intuition and holistic perception or thinking.
The seat of reason.	The seat of passion and of dreams.
The crucial side of the brain for wordsmiths, mathematicians and scientists.	The crucial side of the brain for artists, craftspeople and musicians.



Your one brain functions because both sides work complementarily and simultaneously. Or, to return to our earlier picture, because both the person standing beside the train and the person hovering way up over the train are in constant communication with each other, sharing what they perceive. Nonetheless, some of us do tend to prefer one side of the brain (i.e., one mode of consciousness or perception) over the other. In our society, we call people who prefer the left side of the brain 'verbal people', while we call people who prefer the right side of the brain 'non-verbal people.' The latter label is obviously outdated, because instead of labeling such people in terms of what they do not have ('non-verbal'), we ought to label them in terms of what they do have. If, for example, the strength of those who prefer the right side of the brain is that they deal well with space and are good at picturing things, then we might call them 'picturing people.'

The issue for you is: do you favor one side of your brain over the other, i.e., do you prefer learning through words rather than learning through pictures? Or vice versa? If so, then this says a lot about the kind of learning place you ought to seek out. Not to pay attention to this factor is to guarantee your Non-Survival in education—particularly if you are a 'picturing person' and you get locked into an educational system which teaches almost exclusively by means of words.

Well, there you have it: four different (sometimes lengthy) questions to ask yourself, in order to ensure that you do indeed survive by getting into the educational *game* (so to speak) that is right for you.

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Possible Rhetorical Links to Learning Style:

Visual:
I see what you're saying.
That looks good.
That idea isn't clear to me.
I'm a little hazy about that.
I went blank for a moment.
Let's cast some light on the subject.
You need a fresh perspective.
I view it this way.
Looking back on it now, I can see...
That was an enlightening moment.
That's a colorful example.

Auditory:
I hear you.
That rings a bell.
It sounds good to me.
Everything just suddenly clicked.
Listen to yourself.
Something tells me this is right.
I can really tune in to what you're saying.

Kinesthetic:
It just feels right.
I can't get a handle on it.
Do you grasp the basic concept?
Get in touch with yourself.
I have a solid understanding.
I keep running into the same problem.
Maybe you should change your stance on that.
You're so insensitive.
I have a feeling you're right.
I'm boxed into a corner.

LEARNING STYLE STUDY TIPS

VISUAL

CLUES :

- Needs to see it to know it
- Strong sense of color
- May have artistic ability
- Difficulty with spoken directions
- Overreaction to sounds
- Trouble following lectures
- Misinterpretation of words

Tips:

- Use of graphics to reinforce learning--films, slides, illustrations, diagrams, doodles.
- Color coding to organize notes and materials.
- Written directions
- Use of flow charts and diagrams for note taking
- Visualizing spelling of words or facts to be memorized

AUDITORY

CLUES :

- Prefers to get information by listening--needs to hear it to know it
- Difficulty following written directions
- Difficulty with reading
- Problems with writing
- Inability to read body language and facial expressions

TIPS

- Use of tapes for reading and for class lecture notes
- Learning by interviewing or by participating in discussions
- Having test questions or directions read aloud or put on audio tape

KINESTHETIC

CLUES:

- Prefers hands-on learning
- Can assemble parts without reading directions
- Difficulty sitting still
- Learns better when physical activity is involved
- May be very well coordinated and have athletic ability

TIPS:

- Experiential learning (making models, doing lab work, and role playing
- Frequent breaks in study periods
- Tracing of letters and words to learn spelling and remember facts
- Use of computer to reinforce learning through the sense of touch
- Memorizing or drilling while walking or exercising
- Expressing abilities through dance, drama, or gymnastics